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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* CHRISTIAN MARZOLIN and DAVID QUERE

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Appeal 2009-003530  
Application 09/926,367  
Technology Center 1700

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Decided:<sup>1</sup> June 17, 2009

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Before BRADLEY R. GARRIS, BEVERLY A. FRANKLIN, and  
LINDA M. GAUDETTE, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1, 2, 4-18, 27-31, and 61-63. We have jurisdiction

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

under 35 U.S.C. § 6.

We AFFIRM for the reasons expressed in the Answer and below.

*Statement of the Case*

Appellants claim a hydrophobic/oleophobic substrate comprising a relief having certain structural characteristics as well as the functional characteristic “wherein said relief provides an angle of advance of a drop of water greater than such angle provided on a flat substrate, which is otherwise the same as said substrate but without said relief, without substantially changing the hysteresis obtained with the flat substrate” (claim 1).

Representative claims 1 and 2 read as follows:

1. A hydrophobic/oleophobic substrate, comprising:

a relief;

wherein said relief consists of a low surface level and a high surface level, said high surface level has a height not less than 1/10 of the dimensions of a plurality of motifs forming said high surface level,

wherein said dimensions are in the region of a micrometer,

wherein said height ranges between 0.1 and 10 micrometers,

wherein said high surface level represents 1 to 65% of a surface of the substrate;

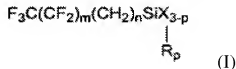
wherein said substrate is hydrophobic/oleophobic, and

wherein said relief provides an angle of advance of a drop of water greater than such angle provided on a flat substrate, which is otherwise the same as said substrate but without said relief, without substantially changing the hysteresis obtained with the flat substrate.

2. The substrate according to claim 1, wherein said substrate further comprises an agent chosen from the group consisting of:

a) silicones, and

b) compounds corresponding to the formulas:



and



where m = 0 to 15;

n = 1 to 5;

p = 0, 1 or 2;

R is a linear or branched alkyl group or a hydrogen atom;

X is a hydrolyzable group such as a halogeno, alkoxy, acetoxy, acyloxy, amino, or a NCO group; and

p' = 0, 1, 2, or 3.

The reference set forth below is relied upon by the Examiner as evidence of anticipation and obviousness:

Huang 6,352,758 B1 Mar. 05, 2002

The Examiner rejects claims 1, 2, 4, 6-10, 15, 17, 18, 27-31, and 61-63 under 35 U.S.C. § 102(e) as being anticipated by Huang and rejects claims 5, 11-14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Huang.

Appellants contest only the § 102 rejection of claims 1 and 2 (App Br. 3-7; Reply Br. 1-3). None of the other claims on appeal including the claims separately rejected under § 103 have been separately argued by Appellants. Accordingly, our disposition of this appeal will focus on claims 1 and 2.

*Issues*

Have Appellants shown error in the Examiner's finding that the functional limitation recited in the last clause of claim 1 is a latent or inherent property of Huang's substrate?

Have Appellants shown error in the Examiner's finding that Huang's substrate comprises an agent including silicones as required by claim 2?

*Findings of Fact*

The Examiner makes the following findings with respect to the rejection of claims 1 and 2 as being anticipated by Huang:

Regarding Applicant's claim 1, Huang discloses a substrate comprising a relief (*grooved layer, col. 4, lines 24-25 and figures 1-3*), wherein the relief consists of a low surface level and a high surface level (*figures 1-3*). The low surface level has a height not less than 1/10 of the dimensions of a plurality of motifs forming the high surface level, since the references discloses [sic] in figure 3 that the height of the motifs is 5 µm and the width of the projection is 4 µm and the spacing between motifs is 4 µm, also see col. 8, lines 49-62. The dimensions are in the region of a micrometer, the height ranges between 0.1 and 10 micrometers (*col. 8, line 52 and figure 3*) and the high surface level represents 1 to 65% of a surface of the substrate (*59% based on figure 3*).

(Ans. 3).

The [claim 1] limitation "wherein said relief provides an angle of advance of a drop of water greater than such angle provided on a flat substrate, which is otherwise the same as

said substrate but without said relief, without substantially changing the hysteresis obtained with the flat substrate" is a functional limitation and is deemed to be a latent property of the prior art since the prior art is substantially identical in composition and/or structure. MPEP 2145 (11).

(Ans. 3).

Regarding Applicant's claim 2, Huang discloses that the substrate is hydrophobic/oleophobic and further comprises an agent of a silicone (*col. 7, line 29*).

(Ans. 4).

In addition, we emphasize the findings set forth below:

The figures 1-3 embodiment of Huang, which is relied upon by the Examiner, comprises a substrate having alternating hydrophobic 2 and hydrophilic 4 surface regions (Figs. 1-3; *col. 4, ll. 18-19*). According to Huang, "water droplets that may begin to form on the hydrophobic areas come into contact with adjacent hydrophilic areas and are spread into a thin film" (*col. 8, ll. 60-63*).

Like Huang, Appellants disclose an embodiment having adjacent hydrophobic and hydrophilic regions such as a high surface level provided with a hydrophobic aspect and a low surface level characterized by a hydrophilic property (*Spec. 9, last para.*).

*Principles of Law*

During examination, claims are to be given their broadest reasonable interpretation consistent with the specification, and claim language should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004).

To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

A patent applicant is free to recite features of an apparatus either structurally or functionally. Yet, choosing to define an element functionally, i.e., by what it does, carries with it a risk. *Id.* at 1478. Specifically,

“where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.”

*Id.* (quoting *In re Swinehart*, 439 F.2d 210, 213 (CCPA 1971)).

#### *Analysis*

Appellants state that the substrate of Huang is designed to function as follows:

In dew conditions, moisture in air is forced to migrate towards the larger hydrophilic regions, without forming droplets on hydrophobic zones. There, water is spread into a thin film (column 3, lines 32-34 and column 8, lines 59-63), due to the hydrophilic nature of the larger areas. Therefore, the aim of Huang et al is to obtain a substrate wherein the water is mainly present on its surface in the form of a thin film, due to large hydrophilic areas.

(App. Br. 5).

Contrary to Appellants’ above-quoted statement, water droplets are capable of forming on the hydrophobic zones of Huang’s substrate. This is evidenced by Huang’s previously noted teaching that “water droplets that

may begin to form on the hydrophobic areas come into contact with adjacent hydrophilic areas and are spread into a thin film” (col. 8, ll. 60-63).

Based on their incorrect statement concerning Huang, Appellants argue that Huang’s “concept is the opposite of that of the present invention” (App. Br. 5, second full para.). According to Appellants, “[t]he claimed textured substrate is characterized by the formation and growth of water drops on the whole of its surface and by an improved flow of the drops, due to the hydrophobic/oleophobic properties of the substrate and to the particular relief present on the whole of its surface” (*id.*).

We do not agree with Appellants that claim 1 is limited to a substrate which “is characterized by the formation and growth of water drops on the whole of its surface” (*id.*; emphasis added). As previously indicated, the last paragraph on page 9 of Appellants’ Specification describes an embodiment which comprises alternating hydrophobic and hydrophilic surface regions and which therefore corresponds in structure and function to the substrate shown in Figures 1-3 of Huang. Appellants point to nothing in claim 1 which excludes their embodiment described on Specification page 9 or the corresponding embodiment shown in Figure 1 of Huang. Therefore, when claim 1 is given its broadest reasonable interpretation consistent with the Specification, the claim 1 substrate is structurally indistinguishable from Huang’s substrate shown in Figures 1-3 as correctly found by the Examiner.

For the above-stated reasons, we are unpersuaded by Appellants’ argument that, “[i]n order to meet the terms of Claim 1 (and claims dependent thereon) herein, one skilled in the art would, at a minimum, have to remove the hydrophilic areas of Huang et al.” (App. Br. 6). We also are unpersuaded by Appellants’ concomitant argument that the Examiner erred



in finding the functional characteristic of the claim 1 substrate (i.e., recited in the last clause of claim 1) to be a latent or inherent property of the structurally identical substrate of Huang on the grounds that “the structure of Huang et al is not substantially identical in composition and/or structure to the presently-claimed invention” (*id.*).

Appellants make the following argument concerning the Examiner’s finding that Huang’s teaching of siloxane coupling agents satisfies the silicone requirement of claim 2:

In reply, a siloxane, unless in polymeric form, i.e., a polysiloxane, cannot be a silicone. The siloxanes listed in Huang et al are examples of coupling agents, of which the Board can take judicial notice are generally low molecular weight compounds.

(Reply Br. 3).

Appellants have provided the record before us with no basis whatsoever for the proposition that Huang’s teaching of siloxanes as coupling agents fails to satisfy the silicone requirement of claim 2. It follows that Appellants have not shown error in the Examiner’s ultimate finding that claim 2 is anticipated by Huang.

*Conclusions of Law*

Appellants have not shown error in the Examiner’s finding that the functional limitation recited in the last clause of claim 1 is a latent or inherent property of Huang’s substrate.

Appellants have not shown error in the Examiner’s finding that Huang’s substrate comprises an agent including silicones as required by claim 2.

As a consequence, we sustain the Examiner's § 102 rejection of claims 1, 2, 4, 6-10, 15, 17, 18, 27-31, and 61-63 as being anticipated by Huang and the § 103 rejection of claims 5, 11-14, and 16 as being unpatentable over Huang.

*Order*

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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